Predictive Modeling and Technical Analysis of Historical Stock Prices for Investment Strategies

Youssef Hanna • 10..07.2023

Objective

To leverage historical stock price data to develop and validate predictive models for forecasting stock price movements. Additionally, the project aims to apply technical analysis techniques to identify trading signals and patterns, ultimately empowering investors with data-driven insights to inform their investment strategies and decisions in the financial markets.

Data Definition:

Date: Timestamp indicating the date of each stock price data point.
Company Ticker: Ticker symbol representing the publicly traded company.
Open Price: The opening price of the stock on a given trading day.
High Price: The highest price reached during the trading day.
Low Price: The lowest price reached during the trading day.
Close Price: The closing price of the stock on a given trading day.
Volume: The number of shares traded on a given trading day.

Data Usage:

Stock Price Prediction: Building predictive models to forecast future stock prices based on historical data and technical indicators.

Technical Analysis: Conducting technical analysis to identify trends, support and resistance levels, and trading signals.

Portfolio Optimization: Developing strategies for portfolio allocation and diversification based on historical stock performance.

Volatility Analysis: Analyzing historical volatility to assess risk and potential returns.

Market Sentiment Analysis: Incorporating market sentiment data to gauge investor sentiment and its impact on stock prices.

Data Assessment:

Date: 5 (High) - Typically available as a primary timestamp in historical stock price datasets.

Company Ticker: 5 (High) - Ticker symbols are readily available for publicly traded companies.

Open Price, High Price, Low Price, Close Price: 5 (High) - Historical stock price data is commonly available from financial data providers.

Volume: 5 (High) - Trading volume data is typically included in historical stock price datasets.

Data Priority:

Data Collection & Preparation: Collect historical stock price data for the selected companies.m Clean and preprocess the collected data for analysis.

Stock Price Prediction (High Priority): Develop predictive models for stock price movements.

Technical Analysis (High Priority): Apply technical analysis techniques to identify trading signals and patterns.

Portfolio Optimization (Moderate Priority): Develop strategies for portfolio allocation based on historical stock performance.

Volatility Analysis (Moderate Priority): Assess historical volatility to manage risk.

Market Sentiment Analysis (Moderate Priority): Incorporate market sentiment data for sentiment analysis.

Conclusion

In summary, the "Historical Stock Price Data" dataset offers valuable insights for financial market analysis and investment strategies. We prioritize data collection, preparation, and the development of predictive models and technical analysis techniques to support investment decisions